Claims

1. A method for producing multifaceted graphitic nanotubes, which process comprises:

i) reacting a mixture of CH_4 and O_2 in the presence of a catalyst system comprised of a mixture of at least one Group VIII metal oxide and at least one

Group II metal oxide at effective temperatures to produce a mixture of CO and H2; and

ii) reacting at least a portion of the mixture of CO and H2 in the presence of a catalyst system comprised of a mixture of a Group VIII metal component and Group II metal oxide at effective temperatures to grow multifaceted graphitic nanotubes therefrom.

2. The method of claim 1 wherein the Group VIII metal is selected from Fe, Ni, and Co.

3. The method of claim 2 wherein the Group VIII metal is Co.

4. The method of claim 1 wherein the mixture of CH_4 and O_2 is reacted at a temperature from about 350°C to about 1000 °C.

5. The method of claim 4 wherein the mixture of CH_4 and O_2 is reacted at a temperature from about 450°C to about 1000°C.

6. The method of claim 1 wherein the temperature at which the graphitic nanotubes are grown is from about 550°C to about 700°C.

7. The method of claim 6 wherein the temperature at which the graphitic nanotubes are grown is from about 600°C to about 700°C.

8. A method for producing multifaceted graphitic nanotubes, which process comprises:

reacting at least a portion of mixture of CO and H_2 in the presence of a catalyst system comprised of a mixture of a Group VIII metal and MgO at effective temperatures to grow multifaceted graphitic nanofibers therefrom.

9 The method of claim 8wherein the Group VIII metal is selected from Fe, Ni, and Co.

10 The method of claim 9wherein the Group VIII metal is Co.

11 The method of claim 8wherein the mixture of CH_4 and O_2 is reacted at a temperature from about 350°C to about 1000 °C.

12 The method of claim 11 wherein the mixture of CH_4 and O_2 is reacted at a temperature from about 450°C to about 1000°C.

13. The method of claim 8 wherein the temperature at which the graphitic nanotubes are grown is from about 550°C to about 670°C.

14. The method of claim 13 wherein the temperature at which the graphitic nanotubes are grown is from about 600°C to about 650°C.